

## **DETAILED ACTION**

### ***Claim Status***

1. Claims 22-39 are pending in the instant application.  
Claims 22-39 stand rejected.

### ***Foreign Priority***

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### ***Information Disclosure Statement***

3. The information disclosure statement (IDS) submissions on 8/3/06 and 3/16/10 are in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner. In the submission dated 8/3/06 in the foreign patent document section items 1, 2, 6 and 7 have not been considered. These documents have not been submitted to the office. In the submission 3/16/10 in the NPL section item 4 has not been considered. There is no date listed in IDS for this reference, there is also no date on the submitted material.

### ***Drawings***

4. The drawings are objected to because Figures 4, 5, 8 and 18 submitted 8/3/06 contain improper use of shading, reducing the legibility of said drawings. *The use of shading in views is encouraged if it aids in understanding the invention and if it does not reduce legibility* 37 C.F.R. 1.84 (M) Shading. Corrected drawing sheets in compliance

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with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### ***Specification***

5. The substitute specification filed 8/3/06 has been entered.

### ***Abstract***

6. Applicant is reminded of the proper language and format for an abstract of the disclosure.

The abstract should be in narrative form and generally limited to a single paragraph on a separate sheet within the range of 50 to 150 words. It is important that the abstract not exceed 150 words in length since the space provided for the abstract on the computer tape used by the printer is limited. The form and legal phraseology

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often used in patent claims, such as "means" and "said," should be avoided. The abstract should describe the disclosure sufficiently to assist readers in deciding whether there is a need for consulting the full patent text for details.

The abstract of the disclosure is objected to because at least in lines 2,3 legal phraseology, the term "said", is present. Correction is required. See MPEP § 608.01(b).

### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 22-39 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 22 line 8 (claim 38 line 9-10) recites "the relevant surface element". There is insufficient antecedent basis for this limitation in the claim. There is no previous reference to a relevant surface element

Claim 22 line 23 (claim 38 line 24) recites "the austenitic zone". There is insufficient antecedent basis for this limitation in the claim. The claim(s) previously recited "austenitic phase".

Claim 31 line 3-4 refers to "the Gibbs free enthalpies" There is insufficient antecedent basis for this limitation in the claim. The claim limitation could have more than one, this lacks antecedent support.

Claim 35 line 8 refers to "the desired end quantity" is insufficient antecedent basis for this limitation in the claim. The claim previously recites a desired end value.

Claim 38 line 7 refers to "the volumetric surface" is insufficient antecedent basis for this limitation in the claim. This limitation was not previously mentioned

### ***Allowable Subject Matter***

8. Claims 22-39 would be allowable if rewritten or amended to overcome the rejection(s) under 35 U.S.C. 112, 2nd paragraph, set forth in this Office action.

### ***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

O.P. Bruno et al., Free Boundary Conditions at Austenite-Martensite Interfaces, 1/30/1995, The American Physical Society, Volume 74, Number 5, pages 746-749, and

G. N. Vlasichev, A method of numerical solution of one-dimensional stefan problems of two types, 1993-09-01, Journal of Engineering Physics and Thermophysics, Volume 65, Issue 3, Pages 896-902

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Both of these references teach the fluid boundaries located in metal and some numerical solutions to the problem.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to LUKE OSBORNE whose telephone number is (571)272-4027. The examiner can normally be reached on 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Paul L. Rodriguez can be reached on (571) 272-3753. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Luke Osborne/  
Examiner, Art Unit 2123

/Paul L Rodriguez/  
Supervisory Patent Examiner, Art Unit 2123

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